

UNITED STATES PATENT OFFICE.

BENJAMIN F. SAURMAN, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY SIGNALING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 790,320, dated May 23, 1905.

Application filed October 8, 1904. Serial No. 227,687.

To all whom it may concern:

Be it known that I, BENJAMIN F. SAURMAN, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Railway Signaling Systems, of which the following is a specification.

My invention has relation to a railway signaling system; and in such connection it relates more particularly to visual and audible signals preferably arranged in the cab of a locomotive and adapted to be automatically actuated by mechanism controlling the wayside signals and to be employed in conjunction with different types of block-signal systems.

The principal object of my invention is to provide a visual and audible signal for a train adapted to indicate at all times to the engineer, fireman, or other persons in charge of a train a clear track or danger ahead or to exercise caution in the running of the train, thus to insure greater safety in the running of the train and permitting the engineer, fireman, or other persons of the train in particularly foggy weather to be informed under varying situations the condition of the tracks by the visual and audible signals, whereby the true condition of the tracks ahead from the train, as well as from the cab of the locomotive, can be readily or quickly determined.

My invention, stated in general terms, consists of a railway signaling system constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a diagrammatic view illustrating a railroad wayside signal, means for controlling the wayside signal, and actuating visual and audible signals arranged in a suitable part of the cab of an engine or in a coach of the train, embodying main features of my invention. Fig. 2 is a top or plan view illustrating the wayside signals and the means for actuating a search-wheel controlling the visual and audible signals. Fig. 3 is an enlarged vertical

sectional view illustrating in side elevation mechanism operating a wayside signal for holding an obstruction in and out of the path of the search-wheel. Fig. 4 is a front elevational view of the obstruction or block and its housing illustrated in Fig. 3. Fig. 5 is a detail view, enlarged, illustrating, partly in side elevation and partly in section, the visual signal and means for actuating the same. Fig. 6 is a top or plan view of Fig. 5, partly in section. Fig. 7 is a detail view illustrating in top or plan view the means for controlling the audible signal. Fig. 8 is a detail view illustrating in side elevation an arm and pawl for actuating the visual signal. Fig. 9 is a detail view, enlarged, illustrating in front elevation and partly in section the search-wheel and means connected therewith for actuating the visual signal; and Fig. 10 is a side elevational view of Fig. 9.

Referring to the drawings with reference to Figs. 1 and 2 thereof, a represents wayside signals consisting of a post a' , to which are movably secured signal-arms a^2 and a^3 , which by means of rods a^4 are normally held in a horizontal or operative position. These signal-arms a^2 and a^3 are colored, preferably green and red, and form when occupying their operative positions danger-signals. When one of these arms is depressed, the caution-signal is formed, and by depressing both arms the free-track signal is established. To the free end of each of the rods a^4 is secured an arm a^5 , projecting in the path of an arm a^6 , secured to a shaft a^{14} , the arm a^{15} of which is engaged by an arm a^7 , secured to a piston-rod a^8 . When the piston-rod a^8 and arm a^7 are moved toward the cylinder a^9 , the movement is transmitted to the arm a^6 , shaft a^{14} , and arm a^{15} , which in turn by actuating the arm a^5 raises the rod a^4 and depresses the signal-arm connected with the same. Each of the signal-arms a^2 and a^3 is, however, independently operated, and for this purpose there is provided a cylinder a^9 for each, in which an actuating fluid—for instance, compressed gas stored in a tank a^{10} —is introduced by a pipe a^{11} , controlled by a valve a^{12} , and permitted to escape therefrom by a valve a^{13} . The movement of the piston-rods a^8 , controlling the